CLAIM AMENDMENTS

Please replace the pending claims with the following claim listing:

1-35. (Cancelled)

36. (New) Biocompatible implant for the treatment of defects in a living organism such as bone defects or tooth extraction wounds, comprising at least one zone of impermeability to soft tissue and/or epithelial cells in-growth, wherein said implant is comprised of an open porous scaffold and a membrane covering at least a part of said scaffold and being sealed to it such that said scaffold and said membrane form a single piece of matter.

37. (New) Biocompatible implant according to claim 36, wherein said implant is also biodegradable.

38. (New) Biocompatible implant according to claim 36, wherein said scaffold is comprised of a synthetic, biocompatible and biodegradable material.

39. (New) Biocompatible implant according to claim 38, wherein said scaffold is comprised of a biopolymer, bioglass, bioceramic, calcium sulfate, or calcium phosphate.

40. (New) Biocompatible implant according to claim 38, wherein said scaffold is comprised of monocalcium phosphate monohydrate, monocalcium phosphate anhydrous, dicalcium phosphate dihydrate, dicalcium phosphate anhydrous, tetracalcium phophate, calcium orthophosphate phosphate, calcium pyrophosphate, α-tricalcium phosphate, β-tricalcium phosphate, or hydroxyapatite.

41. (New) Biocompatible implant according to claim 38, wherein said scaffold is comprised of poly(α-hydroxyesters), poly(ortho esters), poly(ether esters), polyanhydrides, poly(phosphazenes), poly(propylene fumarates), poly(ester amides), poly(ethylene fumarates), poly(amino acids), polysaccharides, polypeptides, poly(hydroxy butyrates), poly(hydroxy valerates), polyurethanes, poly(malic acid), polylactides, polyglycolides, polycaprolactones, poly(glycolide-co-trimethylene carbonates), polydioxanones, or co-polymers, terpolymers thereof or blends of those polymers, or a combination of biocompatible and biodegradable materials.

42. (New) Biocompatible implant according to claim 36, wherein said scaffold is comprised of fused, biocompatible, biodegradable granules selected from the group consisting of solid granules, porous granules, hollow granules, hollow granules with at least one opening in the granule, or a mixture thereof; said granules having an equivalent-diameter in a range between about 100 μm to about 2000 μm, a major portion of said granules being coated with at least one biocompatible and biodegradable layer of a polymer selected from the group consisting of poly(α-hydroxyesters), poly(ortho esters), poly(ether esters), polyanhydrides, poly(phosphazenes), poly(propylene fumarates), poly(ester amides), poly(ethylene fumarates), poly(amino acids), polysaccharides, polypeptides, poly(hydroxy butyrates), poly(hydroxy valerates), polyurethanes,

poly(malic acid), polylactides, polyglycolides, polycaprolactones, poly(glycolide-co-trimethylene carbonates), polydioxanones, or copolymers, terpolymers thereof, or blends of those polymers; and said polymer coating having a thickness in a range between 1 μm to 300 μm.

43. (New) Biocompatible implant according to claim 42, wherein said granules having an equivalent-diameter in a range between about 500 μm to about 1000 μm.

44. (New) Biocompatible implant according to claim 42, wherein said polymer coating has a thickness in a range between 5 μm to 30 μm.

45. (New) Biocompatible implant according to claim 42, wherein said granules have a spherical shape.

46. (New) Biocompatible implant according to claim 36, wherein said scaffold has an open porous configuration with interconnected pores having a size in a range between about 10 μm to about 2000 μm.

47. (New) Biocompatible implant according to claim 46, wherein said interconnected pores have a size in a range between about 100 μm to about 500 μm.

48. (New) Biocompatible implant according to claim 36, wherein said membrane is made of synthetic, biocompatible and biodegradable polymer selected from the group consisting of poly(α-hydroxyesters), poly(ortho esters), poly(ether esters), polyanhydrides, poly(phosphazenes), poly(propylene fumarates), poly(ester amides), poly(ethylene fumarates), poly(amino acids), polysaccharides, polypeptides, poly(hydroxy butyrates), poly(hydroxy valerates), polyurethanes, poly(malic acid), polylactides, polyglycolides, polycaprolactones, poly(glycolide-co-trimethylene carbonates), polydioxanones, or copolymers, terpolymers thereof, or blends of those polymers.

49. (New) Biocompatible implant according to claim 36, wherein said biodegradable membrane is a polymer film, a polymer textile, a polymer fleece, a layer of fused polymer particles or a combination thereof, thus forming at least one zone of impermeability to soft tissue and/ or epithelial cells in-growth, and having a thickness in a range between about 10 μm to about 3000 μm.

50. (New) Biocompatible implant according to claim 49, wherein said at least one zone of impermeability to soft tissue and/ or epithelial cells in-growth has a thickness in a range between about 50 μm to about 1000 μm.

51. (New) Biocompatible implant according to claim 36, wherein said biodegradable membrane is made of fused polymer particles.

52. (New) Biocompatible implant according to claim 51, wherein said fused polymer particles comprise microspheres, pellets or granules, having a size smaller than about 500 μm.

53. (New) Biocompatible implant according to claim 36, wherein said membrane has a configuration such as to allow a transport of fluids and/or molecules through the membrane, but forming a barrier against soft tissue and/or epithelial cells in-growth into the implant.

54. (New) Biocompatible implant according to claim 36, wherein at least a portion of the said membrane has a porous configuration, said porosity being formed by pores having sizes in the range between about 1 μm to 500 μm.

55. (New) Biocompatible implant according to claim 54, wherein said pores have sizes in a range between about 5 μm to 50 μm.

56. (New) Biocompatible implant according to claim 36, wherein said membrane comprises at least two layers, one of said layers having a barrier function against soft tissue and/or epithelial cells in-growth in the scaffold, and a second layer, which is direct in contact with the surrounding living organism, allowing the stabilization and anchorage of soft tissue which tends to close the wound.

57. (New) Biocompatible implant according to claim 36, wherein said membrane comprises at least one non-porous layer.

58. (New) Biocompatible implant according to claim 36, said scaffold and/or said membrane including void spaces that are at least partially filled with at least on of air or gas, polymer, liquid, gel, or solid particles.

59. (New) Biocompatible implant according to claim 36, further comprising at least one biologically active substance which is integrated in said scaffold and/or in said granules and/or in a coating applied to the granules or implant and/or in said membrane and/or which is encapsulated in microspheres which are loaded into said scaffold and/or into said membrane and/or within macropores between said granules.

60. (New) Biocompatible implant according to claim 36, further comprising at least one additive that is integrated into said scaffold and/or into said membrane.

61. (New) Biocompatible implant according to claim 60, wherein said at least one additive comprises a plasticizer.

62. (New) Biocompatible implant according to claim 36, wherein an exposed surface of said biocompatible implant allows cell growth into the scaffold.

63. (New) Biocompatible implant according to claim 36, wherein said biocompatible implant is seeded with cells.

64. (New) Method for the preparation of a biocompatible implant for the treatment of defects in a living organism such as bone defects or tooth extraction wounds, said method comprising fusing or joining together an open porous scaffold and at least one membrane that is comprised of a polymer film, a polymer fleece, a layer of fused polymer particles or a combination thereof, thus, creating at the surface of the said implant at least one zone of impermeability against soft tissue and/or epithelial cells in-growth.

65. (New) Method according to claim 64, wherein said implant is also biodegradable.

66. (New) Method according to claim 64, wherein said open porous scaffold and said membrane are fused together by subjecting them for a time span of at least about 3 seconds to a pressurized CO_2 atmosphere, said CO_2 atmosphere having a pressure of about 20 bar to about 200 bar, at a temperature of about 10°C to about 100°C.

67. (New) Method according to claim 64, wherein said open porous scaffold and said membrane are fused together by subjecting them for a time span of at least about 10 seconds to a heat treatment at elevated temperatures of about 50°C to about 220°C.

68. (New) Method according to claim 64, wherein after fusing together said scaffold and said membrane, said membrane is subjected to a final heat treatment at a temperature of about 100°C to about 220°C for a time span of about 5 s to about 120 s.

69. (New) Method according to claim 64, wherein said open porous scaffold is comprised of a synthetic, biocompatible and biodegradable materials comprised of biopolymers, bioglasses, bioceramics, calcium sulfate, calcium phosphate, monocalcium phosphate monohydrate, monocalcium phosphate anhydrous, dicalcium phosphate dihydrate, dicalcium phosphate anhydrous, tetracalcium phosphate, calcium orthophosphate phosphate, calcium pyrophosphate, α-tricalcium phosphate, β-tricalcium phosphate, apatite, hydroxyapatite, polymers, poly(α-hydroxyesters), poly(ortho esters), poly(ether esters), polyanhydrides, poly(phosphazenes), poly(propylene fumarates), poly(ester amides), poly(ethylene fumarates), poly(amino acids), polysaccharides, polypeptides, poly(hydroxy butyrates), poly(hydroxy valerates), polyurethanes, poly(malic acid), polylactides, polyglycolides, polycaprolactones, poly(glycolide-co-trimethylene carbonates), polydioxanones, or copolymers, terpolymers thereof or blends of those polymers, or a combination of biocompatible and biodegradable materials; said open porous scaffold having an open porous configuration with interconnected pores having a size of about 10 μm to about 2000 μm; and said membrane being made of a synthetic, biocompatible and biodegradable polymer selected from the group consisting of poly(α-hydroxyesters), poly(ortho esters), poly(ether esters), polyanhydrides, poly(phosphazenes), poly(propylene fumarates), poly(ester amides), poly(ethylene fumarate), poly(amino acids), polysaccharides, polypeptides, poly(hydroxy butyrates), poly(hydroxy valerates), polyurethanes, poly(malic acid), polylactides, polyglycolides, polycaprolactones, poly(glycolide-co-trimethylene carbonates), polydioxanones, or copolymers, terpolymers thereof or blends of those polymers; said membrane being preferably in the form of a polymer film, a polymer textile, a polymer fleece, a layer of fused polymer particles or a combination thereof; and said membrane forming at least one zone of impermeability against soft tissue and/or epithelial cells in-growth into said implant.

70. (New) Method according to claim 64, wherein said scaffold is comprised of fused biocompatible and biodegradable granules which are selected from the group consisting of solid granules, porous granules, hollow granules, hollow granules with at least one opening in the granule, or a mixture thereof; said granules having an equivalent-diameter of about 100 μm to about 2000 μm; and a major portion of said granules being coated with at least one biocompatible and biodegradable polymer layer having a thickness of about 1 μm to about 300 μm.

71. (New) Biocompatible implant for the treatment of defects in a living organism such as bone defects or tooth extraction wounds, comprising at least one zone of impermeability to soft tissue and/or epithelial cells in-growth, wherein said implant is made of a composite matrix and a membrane covering at least a part of said composite matrix and being sealed to it such that said composite matrix and said membrane form a single piece of matter, said composite matrix comprising a plurality of inorganic or synthetic granules bonded or held together by a synthetic polymer matrix.

72. (New) Biocompatible implant according to claim 71, wherein said implant is also biodegradable.

73. (New) Biocompatible implant according to claim 71, said inorganic or synthetic granules comprising at least one of biopolymers, bioglasses, bioceramics, more preferably calcium sulfate, calcium phosphate such as, for example, monocalcium phosphate monohydrate, monocalcium phosphate anhydrous, dicalcium phosphate dihydrate, dicalcium phosphate anhydrous, tetracalcium phophate, calcium orthophosphate phosphate, calcium pyrophosphate, α-tricalcium phosphate, β-tricalcium phosphate, apatite such as hydroxyapatite, or polymers such as, for example, poly(α-hydroxyesters), poly(ortho esters), poly(ether esters), polyanhydrides, poly(phosphazenes), poly(propylene fumarates), poly(ester amides), poly(ethylene fumarates), poly(amino acids), polysaccharides, polypeptides, poly(hydroxy butyrates), poly(hydroxy valerates), polyurethanes, poly(malic acid), polylactides, polyglycolides, polycaprolactones, poly(glycolide-co-trimethylene carbonates), polydioxanones, or co-polymers, terpolymers thereof or blends of those polymers, or a combination of biocompatible and biodegradable materials.

74. (New) Biocompatible implant according to claim 71, said inorganic or synthetic granules selected from the group consisting of solid granules, porous granules, hollow granules, hollow granules with at least one opening in the granule, or a mixture thereof; said granules having an equivalent-diameter in a range between about 100 μm to about 2000 μm.

75. (New) Biocompatible implant according to claim 71, said synthetic polymer matrix comprising at least one of poly(α-hydroxyesters), poly(ortho esters), poly(ether esters), polyanhydrides, poly(phosphazenes), poly(propylene fumarates), poly(ester amides), poly(ethylene fumarates), poly(amino acids), polysaccharides, polypeptides, poly(hydroxy butyrates), poly(hydroxy valerates), polyurethanes, poly(malic acid), polylactides, polyglycolides, polycaprolactones,

poly(glycolide-co-trimethylene carbonates), polydioxanones, or copolymers, terpolymers thereof, or blends of those polymers.

76. (New) Biocompatible implant according to claim 71, said composite matrix having an open porous configuration with interconnected pores having a size in a range between about 10 μm to about 2000 μm.

77. (New) Biocompatible implant according to claim 71, said composite matrix including void spaces between adjacent granules that are at least partially filled with at least one of air or gas, polymer, liquid, gel, or solid particles.

78. (New) Biocompatible implant according to claim 71, said composite matrix including void spaces between adjacent granules that are filled with at least with a biologically active substance.

79. (New) Biocompatible implant according to claim 71, wherein said biodegradable membrane is a polymer film, a polymer textile, a polymer fleece, a layer of fused polymer particles or a combination thereof, thus forming at least one zone of impermeability to soft tissue and/ or epithelial cells in-growth, and having a thickness of about 10 μm to about 3000 μm.

80. (New) Method for the preparation of a biocompatible implant for the treatment of defects in a living organism such as bone defects or tooth extraction wounds, the method comprising fusing or joining together a composite matrix comprising a plurality of inorganic or synthetic granules and a synthetic polymer matrix and at least one membrane that is preferably made of a polymer film, a polymer fleece, a layer of fused polymer particles or a combination thereof, thus, creating at the surface of the said implant at least one zone of impermeability against soft tissue and/or epithelial cells in-growth.

81. (New) Method according to claim 80, wherein said implant is also biodegradable.